

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claim 15 has been cancelled. The remaining claims have been amended to further recite the feature of Claim 15 that the transferred or movable article is a board.

New Claim 18 is based on Claim 9 but recites an element in means plus function format, i.e., the means for creating a continuous flat guide surface in the transfer direction between the guide surfaces of the respective guide rails and the stretching mechanism. The disclosed structure corresponding to this means is the complementary member 22 which is vertically movable to keep the guide surface continuous.

It has been known to transfer articles such as printed circuit boards using a transfer conveyer in which a pair of guide rails are provided with guide surfaces for guiding the side surfaces of the transferred article in a transfer direction, wherein pulleys are provided for endless belts which support the lower surfaces of the transferred article. The guide surfaces assure a smooth transfer of the boards without shocks, which is important as the boards typically hold electronic components which are positioned only by the viscosity of soldering paste; shocks during transfer could cause the components to undesirably move on the boards.

It is common to position such transfer conveyers between two adjoining conveyers, in which case care must be taken to precisely fit the transfer conveyor in the available space. In order to solve this problem, it has been known to make end portions of the guide rails stretchable, as in Japanese published patent application 2000-142944. However, this has been found to conflict with the smooth guiding function of the side surfaces of the conveyor,

due to the presence of clearances in the guide surface resulting from the stretching of the conveyor.

According to a feature of the invention, a transfer conveyer has guide surfaces for guiding a transferred board, which form continuous and flat guide surfaces even in the case where an end portion of each guide rail is stretched by a stretching mechanism. For example, in the non-limiting embodiments described in the specification, a stretching mechanism 10 has an adjuster member 14 with a guide surface 18 even with the guide surface 4 of each guide rail 2a. The adjuster member 14 is movable in the conveying direction to stretch the conveyor. According to the embodiment of the invention, a complementary member 22 is positioned in the gap that would otherwise be formed between the guide surfaces 4 and 18 due to the stretching of the stretching mechanism 10. The complementary member 22 has a complementary guide surface 26 that is able to keep the overall guide surface even and continuous as the adjuster member 14 is moved in the conveying direction, by being mounted to move vertically under the urging of the spring 33, due to the slanted joint surfaces 16 and 24. Meanwhile, an endless belt 5 supports the board being guided by the guide surfaces for movement in the transfer direction. The belt 5 is wound on pulleys 6 mounted on the rails, the adjuster member 14 and the complementary member 22.

Claim 9 now incorporates the feature of Claim 15. Claim 15 was rejected under 35 U.S.C. § 103 as being unpatentable over Long in view of Kane. However this rejection is respectfully traversed.

As a threshold matter, it is respectfully submitted that Long is not analogous prior art. “In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably

pertinent to the particular problem with which the inventor was concerned.”

M.P.E.P. §2141.01(a). For example, it has been held that one skilled in the art seeking to solve a problem of fastening a hose clamp would not reasonably be expected or motivated to look to fasteners for garments, and so a reference disclosing a hook and eye fastener for use in garments was not analogous prior art with respect to a claim directed to a hose clamp. *Id.* This requirement that prior art be analogous was not altered by the recent Federal Circuit decision in *KSR International v. Teleflex*. See the Examination Guidelines published in the Federal Register on October 10, 2007, (Fed. Reg., Vol. 10, no. 195, pp. 57526, 57533).

Here, the problem presented to the would-be inventor is one of smoothly conveying and guiding a board. Prior art reasonably pertinent to this problem must similarly both convey and guide articles while minimizing shocks.

Long relates to an extensible belt conveyor for transferring ore in mining operations (col. 1, lines 16-17). Ore is composed of discrete particles and nuggets which are carried by a belt 25. Long is concerned with rubbing of the belt runs in a storage unit that stores the extra length of belt required due the extensibility of the conveyor (col. 1, lines 27-39). On the other hand, since the ore is carried on the belt, it is not guided by surfaces of the rails to which the belt is mounted: any nuggets of ore reaching the rails would simply fall of the conveyor. Especially, there is no concern for smooth transfer, and guiding without shocks, of this particulate raw material. It may therefore be appreciated that Long is not reasonably pertinent to this problem confronting an inventor of a stretchable transfer conveyer for a transferred article comprising a board. Thus Long is not analogous prior art and cannot support a rejection based on obviousness.

Beyond this, Long fails to teach the claimed structural features of the invention. For example, Claim 9 recites in part “a stretchable guide surface [for guiding both side surfaces of the transferred article] provided at a facing surface of the stretching mechanism and formed into a flat surface continuous and even with the guide surface regardless of the stretched position of the stretching mechanism.” Long lacks any such guide surface for the transferred article, as explained above.

The Office Action evidently considers that Long teaches a guide surface at lines 38-40 of col. 3 in the reference. However this description only describes tracks in the rails 30-31 for the pulley clusters C and D. These tracks only guide the movement of the pulley clusters C and D during belt length adjustment, not the side surfaces of the transferred articles (ore). Additionally, there is no evidence that these tracks are inherently “formed into a flat surface continuous and even with the guide surface regardless of the” positions of the pulley clusters. The tracks could easily have indentations for preferred positions of the pulley clusters. Thus this important structural feature of Claim 9 is absent in Long.

As to the obviousness of combining Long with Kane to teach modifying Long to guide boards, Kane discloses a conventional adjustable conveyor for circuit boards. The Office Action has taken the position that it would have been obvious to have applied the handling of the circuit boards of Kane to Long in order to “diversify the usage of the conveyor system.” However, one skilled in the art would not have found it obvious to have “diversified” the usage of the ore conveyor of Long to the transfer of articles it is not equipped to handle – articles that must be guided without substantial shocks. Thus this combination would not have been obvious.

In any case, Long lacks the claimed “stretchable guide surface [for guiding both side surfaces of the transferred article] provided at a facing surface of the stretching mechanism and formed into a flat surface continuous and even with the guide surface regardless of the stretched position of the stretching mechanism,” and so the proposed modification in view of Kane would still not have met the limitations of Claim 9.

Method Claim 16 recites a step of “providing a complementary member, which is provided with a complementary guide surface [for guiding both side surfaces of the transferred article] being a flat surface even with the guide surface, to be movable in the complementary direction intersecting with the transfer direction, with the guide surface and the complementary guide surface defining a continuous and even flat surface,” and now further recites that the article is a board. Here again, Long lacks the claimed guide surface and one skilled in the art would not have found it obvious to have “diversified” the usage of the ore conveyor of Long, in view of Kane, to the transfer of articles (a board) that it is not equipped to handle. Claim 16 therefore also defines over this prior art.

Claim 17 recites a complementary member insertable into a space which is made between the guide surface of the guide rail and the adjuster guide surface of the adjuster member when the adjuster member is moved in the moving direction, and provided with a complementary guide surface for forming a stretchable guide surface together with the adjuster guide surface, and now further recites that the article is a board. The Office Action identifies element 22 as being the complementary member in Long, but element 22 is merely the tail section of the belt; it cannot be the claimed complementary member insertable into a space which is made between the guide surface of the guide rail and the adjuster guide surface of the adjuster member when the adjuster member is moved in the moving direction.

In any case, Claim 17 now further recites the board and one skilled in the art would not have found it obvious to have “diversified” the usage of the ore conveyor of Long, in view of Kane, to the transfer of articles (a board) it is not equipped to handle. Claim 17 therefore also defines over this prior art.

New Claim 18 also recites the board, and recites “means” for creating a continuous flat guide surface in the transfer direction between the guide surfaces of the respective guide rails and the stretching mechanism, for all stretched positions of the stretching mechanism, the continuous flat guide surface being continuous with, and even with, the guide surfaces of the guide rails and the stretching mechanism. This is a “means plus function” limitation which is limited to the structure disclosed in the specification for performing the claimed function of “creating a continuous flat guide surface in the transfer direction between the guide surfaces of the respective guide rails and the stretching mechanism, for all stretched positions of the stretching mechanism, the continuous flat guide surface being continuous with, and even with, the guide surfaces of the guide rails and the stretching mechanism” and equivalent structures. The corresponding structure disclosed in the specification is the complementary member 22 which is movable to keep the guide surface continuous. No such complementary member is present in Long (element 22 of Long is merely the tail section of the belt). For this reason, and because one skilled in the art would not have found it obvious to have “diversified” the usage of the ore conveyor of Long, in view of Kane, to the transfer of articles (a board) it is not equipped to handle, new Claim 18 also defines over this prior art.

Claims 12 and 13 were rejected under 35 U.S.C. § 103 as being unpatentable over Long in view of Middlesworth which was cited to teach rotational members. However Middlesworth provides no teaching for overcoming the shortcomings of Long with respect to

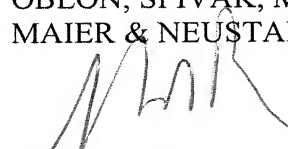
Application No. 10/552,576
Reply to Office Action of August 17, 2007

Claim 9, and so it is respectfully submitted that the claims define over any of the cite prior art.

Applicant therefore believes that the present application is in a condition for allowance and respectfully solicits an early notice of allowability.

Respectfully submitted,

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